

An Evaluation of the Causes and Effects of Delayed Payments on the Productivity of Construction Companies in Guyana

Shanomae Oneka Eastman

Department of Civil Engineering, Faculty of Engineering and Technology, University of Guyana



Published in IJIRMP (E-ISSN: 2349-7300), Volume 10, Issue 4, July-August 2022

License: [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)



Abstract

Delayed payments for services rendered by contractors are seen as a key problem in the construction sector. It causes significant cash flow problems, which can obliterate the contractual payment chain. The study was done to determine the causes and effects of delayed payments for works completed in the construction sector in Guyana and to ascertain the actions taken by contractors to overcome these problems. In order to obtain data for the study, a random sample of 180 contractors, consultants, and clients in the construction sector in Region 4 were emailed questionnaires. A total of 65 questionnaires were completed and returned for analysis. The ranking of the findings for the causes of delayed payment were determined using the relative importance index for four categories: contractor-related factors, client-related factors, contract-related factors, and consultant-related factors. Effects of delayed payments on contractors' productivity and finance and actions taken by contractors to overcome delayed problems were also studied. Some of the causes of delayed payment from the study include contractors' disagreement on valuation of the work, contractors' failure to substantiate their claims, delay in certification of work done by architect or contract administrator, delay in valuation of work done by quantity surveyor, client delay in certification unrealistic cash, client failure to agree to the valuation of work. From the study, delayed payments results in delay in project progress and have effects on the materials supply capabilities of contractors, the forecasted profit margin, and the amount of the line of credits provided by materials suppliers and banks. Some of the preferred actions taken by contractors include following up with clients by direct communication, applying interest charge to the overdue payments, and slowing down the construction work at site until payment is received.

Keywords: Delayed Payments, Construction Companies, Productivity

1. Introduction

It is well known that payment is an industry's lifeblood and delayed payment is a global problem (Hasmori, Ismail & Said, 2012). The delay in time between expenditures and payments and retentions from progress payments, according to Abeysekera (2002) as cited in Odeyinka & Kaka (2005), are two fundamental issues that occur with regard to payment procedures. Delayed payments cause financial difficulties for construction companies, and occasionally the effects are so severe that some companies

are forced to insolvency (Anash, 2011) and this occurs particularly when delay exceeds the "elastic" range; this relatively small "time lag" between expenditure and payment (Odeyinka & Kaka, 2005). Furthermore, failure of one party has an effect on the other parties as a result of the chain payment system (Okereke, 2020; Odeyinka & Kaka, 2005). Untimely issuance of progress payments has an impact on the payment of employees and suppliers, which therefore has a negative impact on employees' motivation and the credibility of contractors to suppliers (Al Alawi, 2021). Repeated late payments may lead to reputational damage, and lower credit ratings (Miwa and Ramseyer, 2008; Petersen and Rajan, 1994; Wilner, 2000 as cited in Hasmori, Ismail & Said, 2012). Navon (1995) as cited in Odeyinka & Kaka (2005) mentioned that banks and other financial organizations are often considerably more likely to lend money to businesses that can provide regular cash flow predictions. Effective cash flow management is particularly crucial for obtaining loans. Furthermore, the profitability of a project might suffer due to late payments, which can also cause a contractor to file for bankruptcy and add another one to the list of incomplete projects (Hasmori, Ismail & Said, 2012).

Issues of Late Payment in the Construction Industry

In his research, Reeves (2003) noted that claim submission problems are the primary causes of late payments. This includes claims without sufficient justification, claims that are calculated incorrectly, and claims that are submitted without adhering to the proper procedures. When this occurs, contractors must resubmit their claims and go through the entire process again after making the necessary corrections. Another cause of late payment is when contractors disagree with the valuation of the work (Odeh and Battanieh, 2002 as cited in Hasmori, Ismail & Said, 2012). Conflicts between clients and the contractor would ensue from this, and since the works wouldn't be validated, late payments would happen.

Hasmori, Ismail & Said (2012) study on the issues with late and non-payments in the eleven states of Peninsular from all micro, small, big, and publicly listed contractors indicated that inadequate financial management by the paymaster is a possible key factor in late and non-payment among contractors, and that financial hardship is a major consequence of both.

The results of a study conducted on a sample of 100 contractors in the Malaysian Construction Industry by Azman et al. (2014), indicate that local attitudes, delays in consultant certification, and poor financial management by the paymaster are some of the key probable causes of late and non-payment. According to the results of the factor analysis, three factors should be carefully considered: factor management and documentation, communication and contract, and culture and attitude.

Anash (2011) noted that a regular and healthy flow of funds is essential for evaluating contractors' effectiveness. In his study on the Ghanaian construction sector, he identified some probable causes of delayed payment as employers' poor financial management, dispute between the parties involved in the contract, and delays in certification. He stated that whether working on publicly or privately funded projects, many stakeholders are impacted by late payments for works completed which severely impairs cash flow, particularly for contractors, and has disastrous cascading effects further down the contractual payment chain. Additionally, construction contracts must be prepared to guarantee the success of the eventual implementation and the smooth operation of the work activities under the contract.

Al Alawi (2021) reviewed some studies on the impact of payment delays on construction productivity and included that of Hiyassat et al. (2016), who discovered a positive correlation between productivity and a company's financial strength; Mahamid (2013), who found that the factors influencing labor productivity in building construction as financial, managerial, materials and equipment, environmental, and labor; and Enshaasi (2014), who discovered that the inadequate materials, safety, inspection and payment delays are the greatest influencing factors. Al Alawi (2021) also conducted a questionnaire survey on 65 small and medium-sized construction enterprises registered with the Oman Tender Board. It was found that a project's financial performance might be significantly impacted by a payment delay. According to him, out of 21 influencing productivity variables, payment delay was ranked third.

Studies conducted by Akinsiku and Ajayi (2016) on the effects of delayed payment on contractors on construction project delivery in Nigeria conducted a questionnaire survey on a total of 47 clients, consultant and contractors. Their study revealed that the causes of delayed payment were unrealistic cash flow, claim errors, poor financial problems, and disagreement on valuation of work. The impact of delayed payment is delay in project progress, which impacts the work schedule and leads to cost overruns and time extensions.

Bissoon and Outridge (2020) conducted a questionnaire survey on a total of 80 small and medium contractors to determine the impacts of delayed payments on planned cash flow on small and medium contractors. They iterated that from 2010 to 2019, one of the key issues still affecting the Trinidad & Tobago (T&T) construction sector is payment delays. Their study showed that the problem of delayed payments over the previous ten years has not much improved. Their review of internal payment monitoring data revealed that some contractors had to wait between 2 to 6 months, and in some cases even years, to get paid. Cash flow problems resulted in decreased business profitability, supply chain repercussions from late payments, work suspension, and insolvency. They suggested prompt payment legislation or statutory adjudication to ensure the viability of small and medium contractors. Their study did not include on the causes of delayed payments.

Payment Terms

In Guyana, the standard bidding documents have carefully prepared terms that regulate every activity to be paid under the contract; these clauses have been reduced to the following main categories:

- **Advanced Payment or Mobilization Advance:** The contractor may receive advanced payment from the employer in the amount stipulated in the special condition of contract on condition that a bank guarantee or bond has been produced by the contractor from a recognized insurance company. The advance payment is reimbursed by subtracting proportionate amounts from the contractor's certificate of accomplished works.
- **Interim Payment:** The most popular technique throughout contract terms is interim payments, often known as progress payments. The issue of "interim certificates" results in the interim or progress payments in standard forms. A periodic certification for the payment owing to the contractor is what an interim certificate is precisely. The duration is specified in the signed conditions of contract.
- **Stage Payment:** When payments are made at particular points in the work process, the phrase "stage payment" is used. This method of payment is frequently used in small lump sum contracts without quantities when it is agreed that a percentage of the entire amount will be paid over the course of several stages. These ratios are predefined and are independent of work re-measurement. The

applications of this payment method are also used in turnkey, design-build, and contracts involving repetitive task.

- **Advance Payment:** This is the amount of money that the employer has agreed to pay the contractor before any actual work is done. Typically, this procedure is used in public works contracts. The primary goal of putting this into place is to help the contractor get started and fund the contract without turning to needless and expensive external borrowing.
- **Payment after Completion:** The attainment of the contract milestone of practical or substantial completion and/or the handing over to the employer activates this type of payment to the contractor.

The standard bidding document in Guyana specifies that “the employer shall pay the contractor sums according to certificates of performed works confirmed by the engineer during 28 days after the invoicing pursuant to the certificate of performed works”.

2. Survey Objective and Research Method

Survey Objectives

In Guyana, many construction contracts provide acceptable payment conditions for completed works, however, there are still persistent issues with delayed payments in the construction industry. The study was done to identify the factors that contribute to the problem of late payments in small, medium and large scale construction companies in Guyana, as well as its causes and consequences, and to create contractual and/or other appropriate remedies. Classifications for small, medium and large size enterprises in this study are done according to the Organization for Economic Cooperation and Development (OECD). Small and medium-sized enterprises (SMEs) are divided into micro enterprises (less than 10) small enterprises (between 10 and 49), and medium-sized firms (50 to 249 employees). 250 or more workers are employed by large businesses. The results of this study may help the government and other relevant parties solve issues related to late and non-payment in the construction sector in a way that benefits all stakeholders.

Research Method

A desk study was first conducted to gather and analyze the available information about the research topic and to obtain more guidance on conducting the study based on prior researchers' techniques and their findings. A quantitative online survey was then created to gather information on the effects of delayed payment on the productivity of construction companies. It was then pretested for errors, ambiguity, and the requisite completion time before being randomly distributed to 180 engineers and construction professionals (clients, contractors and consultants) in Administrative Region 4 to complete over the course of two weeks and returned anonymously.

The survey was designed to:

1. Determine what factors led to payment delay.
2. Identify the effects of payment delays.
3. Look at the corrective measures that will be used to improve the situation as a result of issues with delayed payments.

Data was collected on the perspectives of the client, contractor, consultant and other construction actors involved in the payment. Construction companies studied included small, medium and large scale that were both publicly and privately owned. On a Likert-type scale of 1 to 5, respondents were asked to rate

the causes of causes of delayed payment (contractor-related factors, client related factors, consultant related factors and contractual related factors), effects of the delay in payments to the contractors' financial performance and actions taken by contractor to overcome delayed payment problems. A score of 1 indicates that a variable is strongly disagree, while a score of 5 indicates strongly agree. The measuring scale has the property of an interval scale, allowing for various statistical analysis to be performed on the data that were gathered. The data from questionnaires were automatically collected by the online survey tool and imported into Microsoft Excel for further analysis using statistical data analysis tools to determine the causes, effects and solutions to delayed payments on the productivity of contractors.

The relative importance index (RII) measure is used to rank the causes, effects, and actions taken by contractors in Guyana to overcome delayed payment problems according to their relative importance. The RII is calculated using the following equation:

$$RII_k = \frac{(5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1)}{5(n_1 + n_2 + n_3 + n_4 + n_5)} \quad (1)$$

Where RII_k is the relative importance of factor k , and n_1, n_2, n_3, n_4 , and n_5 is the respondents' number in each Likert scale point.

According to Akadiri (2011) as cited in Rooshdi et al. (2018), five important levels (IL) are transformed from RII values: high (H) ($0.8 \leq RI \leq 1$), high-medium (H-M) ($0.6 \leq RI \leq 0.8$), medium (M) ($0.4 \leq RI \leq 0.6$), medium-low (M-L) ($0.2 \leq RI \leq 0.4$) and low (L) ($0 \leq RI \leq 0.2$).

3. Results and Discussion

Demographic Data

The response rate for the completed survey was 65 out of 180 or 36%. This is slightly below the average online survey response rate of 44.1% (Wu, Zhao & Fils-Aime, 2022). Table 1 displays the demographic information of the respondents. 78% of those surveyed were men, while the remaining 22% were women. This gives a good indication of the composition of the gender in this sector in Guyana. The response rate from age range 18–24 years old amounted to 9% of all respondents, age ranges 25–34 accounted for 55%; responses from and above 35 years old totaled 36%. The majority of the respondents were amply qualified with 94% being holders of diploma, BSc/BEng., MSc/MEng or PhD/Doctorate degree. 53.8% of those surveyed were contractor / contractor representative, 24.6% consultant / consultant representative and 21.6% client / client representatives. This is also a positive indicator that the responses are pertinent to the survey. Respondents with less than 5 years of experience accounted for 23.1% of the sample, 5-10 years of experience accounted for 38.5% of the sample and above 20 years of experience totaled 24.6%. Ownership of construction companies ranged from incorporated (limited liability), unincorporated (sole trader) and partnership. The category of ownership with the largest number of employees is incorporated at 45%, followed by unincorporated at 30%, partnerships at 18% and other at 7%. Construction company sizes were based on the number of employees with 23% categorized as micro (1-9 employees), 38% as small (10-49 employees), 21% as medium-sized (50-249 employees), and 18% as large (above 249 employees). Whilst demographic information reveals the respondents' backgrounds, it may also be utilized to subjectively comprehend the respondents work mechanism (Al Alawi, 2021).

Table 1: Summary of Respondents' Demographics

Personal Attributes	Distribution %
Gender	
Male	78
Female	22
Age Range (Years)	
18-24	9
25-34	55
35-44	11
45-54	9
55-64	11
Above 65	5
Education	
PhD / Doctorate	2
MSc / MBA	26
BSc / BEng	49
Diploma	17
CSEC / GCE	3
Other	3
Employment	
Contractor / Contractor Representative	53.8
Consultant / Consultant Representative	24.6
Client / Client Representative	21.6
Working Experience (Years)	
Less than 5	23.1
5-10	38.5
11-15	10.7
16-20	3.1%
Above 20	24.6%
Ownership Type of Construction Companies	
Micro	23
Small	38
Medium	21
Large	18

Causes of Delayed Payment

This section addresses the issues that contribute to payment delays in the construction sector in Guyana and are placed in four categories: contractor-related factors, client-related factors, contract-related factors, and consultant-related factors. Tables 2–6 show the results of each of these categories.

Contractor-related Factors

Table 2 displays the relative importance index (RII) and ranking (R) for contractor-related factors as chosen by contractors, consultants, and clients, respectively. Both contractors and clients ranked disagreement on valuation of the work as the top ranking reason for delayed payment with RII = 0.60 and 0.66 respectively. Consultants rank contractors' failure to substantiate their claims as the number 1 (RII = 0.71) followed by failure of contractor to do work based on Bill of Quantities (BOQ) (RII = 0.68). Failure of contractor to understand the contract agreement received the lowest ranking from contractors and clients (RII = 0.35 and 0.47) respectively however, disagreement on valuation of the work received the lowest ranking by consultants (RII = 0.44).

Table 2: Causes of Delayed Payment (Contractor-related Factors)

Causes of Delayed Payment (Contractor-related Factors)	Contractors		Consultants		Clients	
	RII	R	RII	R	RII	R
Disagreement on valuation of the work	0.60	1	0.44	6	0.66	1
Failure of contractor to do work based on bill of quantities (BOQ)	0.46	2	0.68	2	0.59	2
Failure of contractors to follow certain procedures in payment certificate preparation	0.39	5	0.66	3	0.53	4
Failure of contractor to understand the contract agreement	0.35	6	0.65	4	0.47	6
Contractor's delay in submitting claims	0.43	3	0.64	5	0.54	3
Contractor's failure to substantiate their claims	0.42	4	0.71	1	0.49	5

Client-related Factors

Table 3 depicts the relative importance index and ranking for client-related factors as reflected by contractors, consultants, and clients, respectively. Client delay in certification is ranked the highest by contractors (RII = 0.71), unrealistic cash flow is ranked the highest by consultants (RII = 0.71) and client failure to agree to the valuation of work is ranked the highest by clients (RII = 0.74). Client failure to understand the contract agreement is ranked the lowest by both contractors and clients (RII = 0.54 and 0.41) respectively. Client failure to agree to the valuation of work is ranked the lowest by consultants (RII = 0.51).

Table 3: Causes of Delayed Payment (Client-related Factors)

Causes of Delayed Payment (Client-related Factors)	Contractors		Consultants		Clients	
	RII	R	RII	R	RII	R
Unrealistic cash flow	0.58	5	0.71	1	0.60	3
Client's poor financial management	0.68	2	0.56	4	0.59	4
Client wrongfully withholding payment to contractor	0.61	4	0.56	4	0.56	5

Client failure to agree to the valuation of work	0.65	3	0.51	6	0.74	1
Client delay in certification.	0.71	1	0.58	3	0.64	2
Client failure to understand the contract agreement	0.54	6	0.61	2	0.41	6

Contract-related Factors

In Guyana, standard bidding documents are comprehensive and provide valuation intervals, 'payment method', time lag between entitlement to receive and actually receiving cash payment, and percentage of contract total retained.

The relative importance index and ranking for contract-related factors as chosen by contractors, consultants, and clients, respectively are depicted in table 4. Unfair contract terms is ranked the highest by contractors (RII = 0.55), improper choice of standard form of contract is ranked the highest by consultants (RII = 0.69) and contracts used are not comprehensive in dealing with payment issues is ranked the highest by clients (RII = 0.53). Contracts used are too complicated to be understood by the parties is ranked the lowest by contractors (RII = 0.46). Contracts used are not comprehensive in dealing with payment issues is ranked the lowest by consultants (RII = 0.51). Unfair contract terms is the lowest ranked contractual-related factors by clients (RII = 0.40).

Table 4: Causes of Delayed Payment (Contractual-related Factors)

Causes of Delayed Payments (Contractual-related Factors)	Contractors		Consultants		Clients	
	RII	R	RII	R	RII	R
Contracts used are not comprehensive in dealing with payment issues	0.53	2	0.51	4	0.53	1
Improper choice of standard form of contract	0.51	3	0.69	1	0.47	2
Unfair contract terms	0.55	1	0.64	2	0.40	4
Contracts used are too complicated to be understood by the parties	0.46	4	0.53	3	0.46	3

Consultant-related Factors

Table 5 depicts the relative importance index and ranking for consultant-related factors as reflected by contractors, consultants, and clients, respectively. Delay in certification of work done by architect or contract administrator and delay in valuation of work done by quantity surveyor ranked the highest by contractors (RII = 0.66). Consultants also ranked the two factors along with consultant failure in treating with claims as the highest (RII = 0.60). This can be explained by the consultant ranking contractor's failure to substantiate their claims the highest in table 4. Inadequate flow of information between project team and delay in certification of work done by architect or contract administrator were ranked the highest by clients (RII = 0.70).

Table 5: Causes of Delayed Payment (Consultant-related Factors)

Causes of Delayed Payments (Consultant-related Factors)	Contractor		Consultant		Client	
Lack of co-ordination of project team activities	0.63	4	0.53	6	0.61	5
Inadequate flow of information between project team	0.65	3	0.54	5	0.70	1
Delay in certification of work done by architect or contract	0.66	1	0.60	1	0.70	1

administrator						
Delay in valuation of work done by quantity surveyor	0.66	1	0.60	1	0.67	3
Poor estimation of project cost	0.62	6	0.56	4	0.67	3
Consultant failure in treating with claims	0.63	4	0.60	1	0.61	5

Generally, the study revealed that payments might be delayed as a result of clients, contractors, consultants, as well as contractual related factors. This supports the findings of other researchers as well. For instance, contractor failure to agree with the valuation of work also ranks the highest in studies conducted by Akinsiku and Ajayi (2016) however, the RII = 0.72. For the client related factors, unrealistic cash flow received the highest ranking (RII = 0.71), followed by clients' poor financial management (RII = 0.71) and the least ranked client related factor is clients' failure to implement good attitude by wrongfully withholding payment to the contractor (RII = 0.60). As it relates to contractual matters, they also found that the highest ranked cause of delayed payment is that the contracts used are not comprehensive in dealing with payment issues (RII = 0.61) and the second highest cause is improper choice of standard form of contract (RII = 0.61). The least ranked contractual related factor is contract used is too complicated to be understood by the parties (RII = 0.55). As it relates to consultant related factors, lack of co-ordination of project team activities received the highest ranking (RII= 0.74), inadequate flow of information between project team ranked second (RII = 0.72) and consultant failure in treating claims ranked third (RII = 0.70). The least ranked consultant related factors are delay in valuation of work done by quantity surveyor (RII = 0.66) and poor estimation of project cost (RII = 0.65).

Effects of Delayed Payments on Contractors' Productivity and Finance

Table 6 depicts the effects of delayed payment of contractors' productivity and finances based on responses from the contractors. From the analysis, it shows that as a result of delayed payment, the highest ranked effect on project delivery are delay in project progress and on contractors' materials supplying capabilities (RII = 0.74). Others impact factors are the amount of line of credits provided by materials suppliers / banks (RII = 0.72) and contractors' materials supplying capabilities (RII = 0.72). The least impact of delayed payment is low quality works (RII = 0.5). However, the importance levels of the effects of the delayed payments on all contractors' performance are High-Medium with the exception of the quality of work.

Studies conducted by Akinsiku and Ajayi (2016) also demonstrate the impacts of delayed payments on a contractors' ability to complete projects on schedule, within budget, and with the desired level of quality. Some of the effects of delayed payments revealed in studies conducted by Bissoon and Outridge (2020) are reduced business profitability, increased late payments to suppliers, difficulties procuring materials and services, increased construction cost and contractors are forced to seek additional funding.

Table 6: Effects of Delayed Payments on Contractors' Productivity and Finance

Effects of the Delayed Payments on Contractors' Performance	RII	R	IL
It causes delay in project progress	0.74	1	H-M
It affects the amount of the line of credits provided by materials suppliers / banks	0.72	2	H-M
It affects the contractor's materials supplying capabilities	0.72	2	H-M

It affects the forecasted profit margin	0.71	4	H-M
It affects the forecasted cash flow of other projects	0.71	4	H-M
It results in extension of time for project completion	0.71	4	H-M
It delays payment of wages	0.69	7	H-M
It creates negative relationship among parties	0.69	7	H-M
It affects the contractor's equipment ownership and operation capabilities	0.67	9	H-M
Subcontractors refuse to continue working on the project	0.66	10	H-M
It results in low quality works	0.50	11	M

Actions Taken by Contractors to Overcome Delayed Payment Problems

Table 7 depicts the actions taken by contractors to overcome delayed payment problems based on the responses of contractors. The analysis shows that as a result of delayed payments, the preferred action is to follow-up with clients by direct communication only (RII = 0.71). Others methods are to apply interest charge to the overdue payments (RII = 0.68), and slow down the construction work at site until payment is received (0.60). The importance levels (IL) for these actions are H-M. The least preferred actions are to use a loan to continue project (RII = 0.53) and to suspend the construction process until payment is received (RII = 0.51) with M level of importance.

According to Abeysekera (2002) as cited in Odeyinka & Kaka (2005), given these difficulties of delayed payment and retention, as well as the fact that contractors operate at a very low profit margin, it is impossible to expect them to have additional funds. As a result, contractors would be compelled to operate with negative cash flows, potentially for the length of a project. Not surprisingly, when internal sources of finances fail to satisfy such criteria, they resort to banks and other financial institutions (i.e. external sources) to address such deficits (Brownie and Harris, 1987; Hamilton and Fox, 1998; Odeyinka & Kaka, 2005). With these negative effects on contractors' cash flow, it is not surprise that contractors were generally displeased with delayed payments and retentions.

In this study, the use a loan to continue project is one of the lowest ranked actions taken by contractors to overcome delayed payment problems. This might be due to the interest charged by banks for commercial loans and also due to the fact that the borrower is required 'put up' collateral for the loan. Suspension and slowing down of construction works in Guyana may not be suitable options as in the standard bidding documents, a penalty is prescribed for slow or non-performance as per the rates for liquidated damages.

As it relates to applying interest charge to the overdue payments, the standard bidding document specifies that "in the case payment is delayed, the employer shall pay interest to the contractor indicated in the special conditions of contract against the delayed payments".

Table 7: Actions Taken by Contractor to Overcome Delayed Payment Problems

Actions Taken by Contractor to Overcome Delayed Payment Problems	Relative Importance Factor (RII)	Rank	Importance Level
Follow-up with clients by direct communication only	0.71	1	H-M
Apply interest charge to the overdue payments	0.68	2	H-M

Slow down the construction work at site until payment is received	0.60	3	H-M
Initiate arbitration or litigation	0.55	4	M
Use a loan to continue project	0.53	6	M
Suspend the construction process until payment is received	0.51	5	M

4. Conclusion

The research paper assessed the causes and effects of delayed payments on the productivity of construction companies in Guyana and the actions taken by contractors to overcome these delayed payment problems. The research revealed that payments might be delayed as a result of the clients, the contractors, the consultants, as well as contract related factors and are ranked differently by them. As it relates to contractor-related matters, both contractors and clients placed disagreement on valuation of the work as the top reason for delayed payment whilst the consultants ranked contractors' failure to substantiate their claims as the highest. For client-related factors, client delay in certification is ranked the highest by contractors, unrealistic cash flow is ranked the highest by consultants, and client failure to agree to the valuation of work is ranked the highest by clients. The highest ranked contract related factor by the contractor is unfair contract terms. Improper choice of standard form of contract is ranked the highest by consultants and contract used are not comprehensive in dealing with payment issues is ranked the highest by clients. Delay in certification of work done by architect or contract administrator and delay in valuation of work done by quantity surveyor ranked the highest by contractors for consultant related factors.

The highest ranked effect of delayed payment on project delivery is delay in project progress. Contractors' materials supplying capabilities and the amount of the line of credits provided by materials suppliers / banks ranked second. Some other impact factors include effects on forecasted profit margin, effects on forecasted cash flow of other projects and extension of time for project completion. The importance levels of all the effects of the delayed payments on contractors' performance are high-medium with the exception of causing low quality works.

As a result of delayed payment, the preferred action is to follow-up with clients by direct communication. Others preferred methods include applying interest charge to the overdue payments, which is approved in the standard bidding document. The importance levels for these actions are high-medium. In addition to the actions taken by contractors as noted in table 7, they can also opt to have a credit line set up with material suppliers. Also, they should ensure that variations in the scope of work are resolved early and works are not executed without issuance of a variation order. Some contracts have unclear methods of measurements, therefore measurements becomes subjective resulting in dispute between the contractor and consultant. As a result, methods of measurements such as standard method of measurements (SMM) for building works, civil engineering standard method of measurement (CESMM) for infrastructure works and RICS new rules of measurements can be adopted. Additionally, to reduce payment delays, and eliminate discrepancies measurements should be carried out jointly with contractors / consultants or contractors / clients prior to the preparation of payment certificates.

In some foreign funded projects at the Ministry of Education, consultants are required to take out professional liability insurance. In this way, if variation is as a result of professional negligence, the risk is transferred to the insurance company instead of the procuring entity. From the client side, if projects

are receiving funding from a foreign lending agency (CDB, IDB, World Bank etc.), the local implementation agency should have its own designated account (foreign account to be accessed locally) rather than submitting payment request directly to the international lending agency. The latter can contribute to additional payment delays as a result of the approval process. Even though low quality work is ranked the lowest as it relates to delayed payment effects, experience has shown that delayed payment can result in poor quality work. Some contractors would tend to ‘stretch’ their materials (use less cement / admixture / add more than recommended fine aggregate than specified in the mix) and in doing so, compromise the quality of the work.

Acknowledgement

I wish to thank all those who participated in the survey. Special thanks is extended to Joseph Eastman, Charles Sobers for all their suggestions and to Joshanna Eastman and Shania Eastman for proof reading the article.

References

1. M. Al Alawi. (2021). Delay in payment effects on productivity of small and medium construction companies in Oman: exploration and ranking. *Asian J Civ Eng*, 22, 1347–1359.
<https://doi.org/10.1007/s42107-021-00387-8>
2. O.E. Akinsiku, M.O. Ajayi. (2016). Effects of delayed payment of contractors on construction project delivery in Nigeria. *Proceedings of the construction building and real estate research conference of the Royal Institution of chartered surveyors*, held at Toronto, Canada 20–22 September, 2016, 1–11.
3. S.K. Ansah. (2011). Causes and Effects of Delayed Payments by Client on Construction Project in Ghana. *Journal of Construction Project Management and Innovation*, 1(1), 27–45.
<https://doi.org/10.36615/jcpmi.v1i1.12>
4. M.N.A. Azman, N. Dzulkalnine, Z.A. Hamid, K.W. Beng. (2014). Payment Issue in Malaysian Construction Industry: Contractors’ Perspective. *Jurnal Teknologi*, 70(1).
<https://doi.org/10.11113/JT.V70.2804>
5. S. Bissoon, D. Outridge. (2020). Delayed Payments Impacts on Planned Cash Flow of Small and Medium Contractors for Special Purpose Company. *Proceedings of the International Conference on Emerging Trends in Engineering & Technology (IConETech-2020)*.
<https://doi.org/10.47412/XCDI8337>
6. M.F. Hasmori, I. Ismail, I. Said. (2012). Issues of late and non – payment among contractors in Malaysia. 3rd International conference on Business and Economic research (3rd ICBER 2012) proceeding 12-13 March, 2012. Golden Flower Hotel, Bandung, Indonesia, 82–93
7. H.A. Odeyinka, A. Kaka. 2005. An Evaluation of Contractor's Satisfaction with Payment Terms Influencing Construction Cash Flow. *Journal of Financial Management of Property and Construction*, 10, 171–180. <https://doi.org/10.1108/13664380580001074>
8. H.A. Odeyinka, A. Kaka, R. Morledge. (2003). An evaluation of construction cash flow management approaches in contracting organizations. In: Greenwood, D. (ed.) *Proceedings of 19th Annual ARCOM Conference*, University of Brighton, September 3-5, 33-41.
9. R.A. Okereke. (August-2020). The Effect of Delayed Payments and Retention on Contractors Cash Flow. *PM World Journal*, 9(8). <https://pmworldlibrary.net/wp-content/uploads/2020/07/pmwj96-Aug2020-Okereke-effect-of-delayed-payments-and-retention.pdf>

10. OECD. (2022). Enterprises by business size (indicator). <https://doi.org/10.1787/31d5eeaf-en>
[Accessed on: 17-July-2022]
11. K. Reeves. (2003). Pay Up. (2003). JUBM Construction News and Views, 1.
12. R.R. Rooshdi, M.Z. Majid, S.R. Sahamir, N.A. Ismail. (2018). Relative Importance Index of Sustainable Design and Construction Activities Criteria for Green Highway. Chemical Engineering Transactions, 63, 151-156. <https://doi.org/10.3303/CET1863026>
13. M. Wu, K. Zhao, F. Fils-Aime. (2022). Response rates of online surveys in published research: A meta-analysis. Computers in Human Behavior Reports, 7.
<https://doi.org/10.1016/j.chbr.2022.100206>